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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/624,627

07/21/2003

Luan C. Tran

MI22-2358

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02/23/2005

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EXAMINER

KENNEDY, JENNIFER M

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,627

Applicant(s)

TRAN, LUAN C.

Examiner

Jennifer M. Kennedy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 62-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 62-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/21/03, 11/13/03, 3/10/04, 4/16/04, 7/13/04, 11/11/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 62-63 and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by Yu et al. (U.S. Patent No. 6,180,468).

In re claim 62, Yu et al. disclose a method of forming a semiconductor construction, comprising:

forming a dielectric material over a semiconductive substrate material (26, 28, 30);

patterning the dielectric material to form at least two patterned blocks, a pair of adjacent blocks being separated by a first gap, each block having a sidewall within the first gap (26, 28, 30, see column 3, lines 13-20 and column 4, lines 14-18);

forming a pair of spacers (32, 34) along the sidewalls and within the first gap, the spacers having lateral edges separated by a gap, the second gap being narrower than the first gap (see Figure 4);

while the spacers remain along the sidewalls, implanting at least one dopant into the semiconductive material within the second gap to form a doped region (see Figure 4 and column 4, lines 27-32); and

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removing the spacers from along the sidewalls (see Figure 5 and column 4, lines 27-32).

In re claim 63, Yu et al. disclose the method further comprising after removing the spacers, forming a layer of polysilicon over the semiconductive material within the gap and along the sidewalls (see column 4, lines 38-42).

In re claim 66, Yu et al. disclose the method wherein the at least one dopant comprises indium (see column 4, lines 27-32).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (U.S. Patent No. 6,180,468) in view of Shenai et al. (U.S. Patent No. 4,985,740).

In re claim 64, Yu et al. disclose the method as claimed and rejected above including the method of planarizing the gate (see column 4, lines 37-42), but do not disclose the method further comprising depositing a material comprising at least one of a metal and a metal nitride over the polysilicon layer and wherein the material comprises tungsten.

Shenai et al. disclose the method further comprising depositing a material comprising at least one of a metal and a metal nitride over the polysilicon layer of a gate and wherein the material comprises tungsten (see column 5, lines 22-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a tungsten layer over the polysilicon gate of Yu et al. in order to allow for low sheet resistance (see abstract).

Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (U.S. Patent No. 6,180,468).

In re claim 67, Yu et al. disclose the method as claimed and rejected above including forming the second gap which has a width that is about half the width of the first gap, but does not explicitly disclose the method wherein the second gap is less than or equal to half the width of the first gap.

The examiner notes that Applicant does not teach that the relative widths of the first gap and second gap solves any stated problem or are for any particular purpose, other than that for the second gap to be narrower than the first gap. Therefore, forming the second gap wherein the second gap is less than or equal to half the width of the first gap lacks criticality in the claimed invention and does not produce unexpected or novel results. Thus, it would have been obvious matter of design choice to form the second gap to have a width less than or equal to half the width of the first trench since it would have allowed for the channel dopant to be spaced apart from the source drain region as desired in Yu et al. (see column 2, lines 10-45) and would allow for miniaturization of the

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device and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233, MPEP 2144.05 II A.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer M. Kennedy whose telephone number is (571) 272-1672. The examiner can normally be reached on Mon.-Fri. 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jennifer M. Kennedy
Patent Examiner
Art Unit 2812

jmk